when auroras were reported from New England to the Dakotas, and southward to the Ohio Valley. Considerable damage was caused in West Virginia about the middle of the month by freshets in the Monongahela and Little Kanawha rivers and tributaries. A freshet was reported in the Wyoming Valley in the Susquehanna River basin, Pennsylvania, on the 26th. On the 29th the Cape Fear River flooded its banks near Wilmington, N. C. Very dry weather was reported in parts of Nebraska, Kansas, Missouri, South Dakota, and south Minnesota. Destructive prairie fires occurred along the Cannon Ball, Heart, and Knife rivers, North Dakota, during the first part of the month.

ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean atmospheric pressure for October, 1890, as determined from observations taken daily at 8 a. m. and 8. p. m. (75th meridian time), is shown on chart II by isobars. The departure of the mean pressure for October, 1890, obtained from observations taken twice daily at the hours named, from that determined from hourly observations, varied at the stations named below, as follows:

Station.	Departure.	Station.	Departure.
Eastport, Me	+.008	Duluth, Minn	+.004
Boston, Mass	+.012	Memphis, Tenn	+.002
New York City	+.010	New Orleans, La	+.004
Philadelphia, Pa	+.015	Saint Louis, Mo	.000
Washington City	+.012	Santa Fé, N. Mex	—.007
Savannah, Ga	+.014	Denver, Colo	—.002
Buffalo, N. Y	+.010	Fort Assinniboine, Mont	—.006
Detroit, Mich	+.011	Salt Lake City, Utah	—.006
Chicago, Ill	+.008	San Francisco, Cal	—.018
Cincinnati, Ohio	+.008	San Diego, Cal	—.015

The mean pressure was highest over Oregon and thence southeastward over north Nevada and northwest Utah, where it was above 30.10, and the mean values were above 30.05 over Mississippi and thence northeastward over east Tennessee. The mean pressure was lowest over east Nova Scotia and Cape Breton Island, where it was below 29.80, and was below 29.90 over a greater part of New England, in the lower Saint Lawrence valley, in the British Possessions north of Minnesota and North Dakota, and in the lower Colorado valley.

A comparison of the pressure chart for October with that of the preceding month shows a decrease in mean pressure in districts east of the Rocky Mountains and north of the Gulf States, the decrease being most marked at stations in southeast New England and Nova Scotia, where the mean pressure was more than .25 lower than for September. Over the Rocky Mountain and plateau regions and on the Pacific coast, the mean pressure was higher than for the preceding month, the most marked increase being noted at stations in north California and Oregon, and thence eastward over the west part of the middle and the south part of the northern plateau regions, where it was more than .10. The area of high pressure which extended from the upper Mississippi valley eastward to the Atlantic coast in September had disappeared in October, and there had been a decrease of .15 to .25 in that region. The area of high pressure whose eastern limit touched the north Pacific coast in September had extended eastward and southeastward over the plateau region in October, with an increase in mean pressure of .05 to .10. An increase of about .05 occurred in the lower Colorado valley, while in the British Possessions north of Minnesota and North Dakota the decrease in mean pressure was more than .10.

The mean pressure was below the normal, save over extreme southern Florida, and on the Pacific coast north of the 40th parallel and thence eastward and southeastward over the northern and middle plateau regions. The greatest departures below the normal pressure occurred in Nova Scotia and on the extreme south New England coast, where they exceeded .20, whence the deficiencies became gradually less marked southward to Florida and westward to the plateau region. In the regions referred to where the mean pressure was above the normal the departures were less than .05.

The monthly barometric ranges at regular stations of the Signal Service are shown in the table of Signal Service data on the last two pages of the REVIEW.

Tabulated statement showing principal characteristics of areas of high and low pressure.

Barometer.	First observed. Date.	First observed. Lat. N.	First observed. Long. W.	Last observed. Lat. N.	Last observed. Long. W.	Duration.	Velocity per hour.	Maximum pressure change and maximum abnormal temperature change in twelve hours and maximum wind velocity. Station.	Rise.	Date.	Station.	Fall.	Date.	Station.	Direction.	Miles per hour.	Date
High areas.		°	°	°	°	Days.	Miles.		Inch.			°					
I	1	45	73	42	68	2.0	9	Sydney, C. B. I	.24	1	Montreal, Quebec	7	1	Atlantic City, N. J	se.	26	3
II	1	42	127	40	113	4.0	12	Cheyenne, Wyo	.30	3	Calgary, N. W. T	26	2	Fort Canby, Wash	sw.	48	4
III	6	43	129	50	93	4.5	22	Edmonton, N. W. T / Winnipeg, Man	.42	8, 9	Cheyenne, Wyo	22	7	Helena, Mont	ne.	40	8
IV	8	52	80	43	72	1.5	22	Parry Sound, Ont	.28	8	Father Point, Quebec	8	9	Anticosti Island, G. St. L.	nw.	26	8
IVa	7	36	80	33	82	4.5	13	Baltimore, Md	.28	8	Atlanta, Ga	16	7	Pensacola, Fla	ne.	26	9
V	12	44	123	38	70	4.0	37	Dubuque, Iowa	.38	13	Dubuque, Iowa	24	13	Valentine, Nebr	nw.	48	13
VI	14	45	130	34	81	4.0	35	Yarmouth, N. S	.50	18	Nashville, Tenn	16	16	Cheyenne, Wyo	w.	42	16
VII	17	44	110	47	65	6.5	22	Pueblo, Colo	.40	18	Pueblo, Colo	19	18	North Platte, Nebr	nw.	36	17
VIII	19	42	127	40	104	2.5	27	Medicine Hat, N. W. T	.44	20	Denver, Colo	21	20	Helena, Mont	w.	36	20
IX	24	45	125	27	94	4.0	30	Qu'Appelle, N. W. T	.36	25	North Platte, Nebr	16	25	Chicago, Ill / Atlanta, Ga	ne. / w.	44	26
X	27	46	116	34	90	4.5	22	Parkersburgh, W. Va	.40	29	Mobile, Ala	19	31	Valentine, Nebr	w.	44	28
Mean						3.8	23		.36			18				38	
Low areas.									Fall.			Rise.					
I	1	55	107	53	99	3.0	8	Calgary, N. W. T	.32	2	Calgary, N. W. T	26	2	Rapid City, S. Dak	n.	38	3
II	4	49	75	47	57	1.5	28	Halifax, N. S	.34	5	Rockliffe, Ont	4	4	Anticosti Island, G. St. L.	ne.	40	4
III	5	38	97	46	73	4.0	16	Keokuk, Iowa	.24	5	Pueblo, Colo	15	5	Grand Haven, Mich	ne.	36	6
IIIa	7	33	74	40	70	0.5	25	Nantucket, Mass	.06	7	Portland, Oregon	6	8	Block Island, R. I	e.	36	7
IV	6	52	117	45	59	5.5	27	Edmonton, N. W. T	.50	6	Concordia, Kans	23	7	Cheyenne, Wyo	w.	48	7
V	7	33	115	54	90	7.0	14	White River, Ont	.50	13	Cheyenne, Wyo	18	10	Chicago, Ill	sw.	48	13
VI	15	38	99	44	60	3.0	32	Boston, Mass	.68	17	Charleston, S. C	16	16	Block Island, R. I	se.	56	17
VII	17	42	98	43	63	3.5	26	Yarmouth, N. S	.48	20	Denver, Colo	15	17	Boston, Mass	ne.	56	19
VIII	18	48	130	48	101	2.0	33	Calgary, N. W. T	.34	18	Helena, Mont	20	18	Fort Canby, Wash	se.	72	18
VIIIa	20	38	100	44	59	6.0	24	Baltimore, Md	.44	23	Pueblo, Colo	23	19	Block Island, R. I	ne.	80	25
IX	20	51	117	50	86	3.0	24	Minnedosa, Man	.34	21	Fort Assinniboine, Mont.	17	21	Fort Assinniboine, Mont.	sw.	46	21
X	26	36	70	48	62	1.5	30	Halifax, N. S	.62	27	Albany, N. Y	9	27	Nantucket, Mass	ne.	56	27
XI	28	45	85	51	60	2.0	35	Keokuk, Iowa	.40	28	Rapid City, S. Dak	20	28	Norfolk, Va	nw.	46	29
Mean						3.3	25		.40			16				51	

AREAS OF HIGH PRESSURE.

During the month of October ten areas of high pressure were observed within the limits of stations of observation, six of which were first observed on the north Pacific coast to the west of the coast line; two first appeared over the northern plateau region; and two over the Saint Lawrence Valley or to the north of that region. Of the ten areas observed only five reached the Atlantic coast; four disappeared in the Mississippi Valley or on the eastern slope of the Rocky Mountains; and one apparently moved westward from the central plateau region and united with the succeeding high area on the north Pacific coast. The direction of movement was apparently to the north of east on the Pacific coast, but after the centre of high pressure reached the coast line the direction of movement changed to the southeast, the mean track of the high areas observed on the Pacific coast being represented by a right line passing from eastern Oregon to central Arkansas. With one exception the areas of high pressure which reached the Mississippi Valley changed direction of movement to the north of east, while the two areas observed in the region of the Saint Lawrence Valley moved to the southeast over New England, one disappearing to the eastward and the other extending southward over the Atlantic coast, finally disappearing by gradual decrease of pressure after reaching the south Atlantic states.

The following is a general description of the more prominent meteorological conditions attending each area of high pressure:

I.—The month opened with high area I covering the Saint Lawrence Valley, the barometer being low in the northern Rocky Mountain regions. This condition continued until the morning of the 2d, except that the high area moved to the New England coast, the area of low pressure had become more clearly defined in the upper Missouri valley, and a second area of high pressure had appeared on the north Pacific coast. Light showers occurred in the regions east of the Mississippi as the wind shifted to the southward under the influence of an advancing area of low pressure. The centre of this area passed to the southeast of New England during the 2d, and its disappearance was attended by local showers throughout southern New England. A secondary area of high pressure also formed over the Southern States, remaining almost stationary until the 4th, when the pressure gave way in the advance of a low area from the westward.

II.—Appeared on the Pacific coast on the afternoon of the 1st, and, after moving northeastward slowly until the afternoon of the 3d, it changed direction to the southeast and moved over the central plateau region, the centre reaching the eastern portion of Utah on the afternoon of the 5th, after which it was apparently drawn to the northwestward and formed a part of high area III, which was central west of Oregon on the 6th.

III.—Was central on the north Pacific coast on the 6th, and moved northeastward during the 7th and 8th, crossing the coast line and reaching the east portion of British Columbia on the last named date, it being preceded in that region by an area of low pressure of considerable energy. The northeasterly movement of this high area apparently continued during the southeasterly movement of the area of low pressure which immediately preceded it, and when the latter changed direction to the northeast after reaching the Dakotas, the course of the high area changed to the south of east, following the same general course. It became less clearly defined as it approached the centre of the continent, where it disappeared during the 11th, although its influence could be traced farther east on the succeeding day.

IV.—Probably extended over the Hudson Bay region during the 8th, and moved southward to the upper Saint Lawrence valley and thence to the New England coast, where it was central on the afternoon of the 9th. A secondary area of high pressure formed over the Southern States during the 7th and moved eastward to the Virginia coast, and the a. m. weather chart of the 10th indicates that these two areas had united, forming a single area, which remained almost stationary over the south Atlantic states until the 12th, when it disappeared under the influence of a general storm which extended from the Gulf to the Lake region on the 13th.

V.—Appeared on the Pacific coast, central in western Oregon, on the 12th, and moved eastward, covering the plateau regions on the 13th, the Rocky Mountain regions on the night of the 13th, and the regions south of the Missouri Valley on the 14th, attended by killing frosts in Kansas and Colorado. It passed eastward over the Southern States during the 14th and 15th, including within its limits the greater portion of the northern states east of the Mississippi. It was attended by light frosts as far south as the northern portion of the Gulf States on the 15th, and disappeared to the east of the middle Atlantic coast on the 16th, moving to the northeast.

VI.—Appeared on the Pacific coast on the 14th, two days later than the area previously described, and moved eastward, following the same general course as that outlined for the preceding area. Light frosts occurred in northern California on the morning of the 14th and killing frosts in Oregon on the morning of the 15th. It passed over the central Rocky Mountain region on the morning of the 16th and to the lower Mississippi valley by the morning of the 17th, attended by light frosts generally throughout the northern portion of the Gulf States. It was last observed as central in the south Atlantic states on the 18th, well-defined areas of low pressure at that time being central in the upper lake region and northeast of New England.

VII.—Apparently formed over the plateau region on the 17th and moved eastward with increasing pressure, covering the eastern slope of the Rocky Mountains on the 18th and the Mississippi Valley on the 19th, causing killing frosts generally throughout the Northwest. During the 19th the centre of greatest pressure shifted from Missouri to the vicinity of Lake Superior, but the easterly movement continued, the southern half of the high area extending from Lake Superior to the Gulf and south Atlantic coasts. Killing frosts occurred in the upper Mississippi valley on the 20th, and light frosts from Tennessee and Kentucky eastward over Virginia and North Carolina. These conditions continued until the morning of the 21st, the area of high pressure remaining almost stationary north of Lake Superior, from which region it moved southeastward over northern New England, where it was central on the 22d, attended by killing frosts in the Lake region and the northern portions of New England and the middle Atlantic states. It moved slowly northeastward from northern New England during the 23d and 24th, the pressure decreasing rapidly at the centre owing to the advance of a severe tropical storm from the southwest.

VIII.—This area of high pressure was observed on the Pacific coast on the 19th. It passed the coast line and was central over the northern plateau region on the morning of the 20th, when it changed direction to the southeast, reaching the central Rocky Mountain region on the morning of the 21st, where it disappeared, owing to the southeast movement of an area to the north and a northeast movement of a severe storm from the Gulf region.

IX.—This area also appeared on the Pacific coast. It was apparently central near the Oregon coast on the 24th. It moved rapidly eastward, covering the entire Rocky Mountain region on the 25th, when it was central in the upper Missouri valley. It covered the eastern slope of the Rocky Mountains on the 26th, central in Nebraska. On the 27th it had reached western Arkansas, attended by killing frosts in central Mississippi. Its southerly movement continued, and when central in the west Gulf on the 28th its effect was indicated by killing frosts in Tennessee and North Carolina and light frosts in South Carolina and Georgia.

X.—Formed over the northern plateau region on the 27th, where it remained almost stationary during the 28th and 29th, extending southward to Arizona and New Mexico. On the morning of the 30th it was central over Colorado, and at the close of the month it covered the Mississippi Valley, being central in northern Mississippi and including within its area all states south of the Lake region.

AREAS OF LOW PRESSURE.

Eleven areas of low pressure have been traced from the regular telegraphic reports received during October. Eight of the areas thus observed passed over or near to the Atlantic coast north of Hatteras, N. C.; seven passed eastward across the meridian of the Mississippi Valley; and four apparently originated on the Pacific coast, three of which were first observed north of Washington, and one apparently developed in southeastern California. The region of greatest storm frequency included the south New England coast, while only a single disturbance was traced over the Southern States. The direction of movement was generally eastward while passing over the centre of the continent, the direction approaching the northeast as the storm centres moved towards the coast. In three instances storms moved north of the stations of observation while the centres were near the centre of the continent.

The following is a general description of the meteorological conditions observed during the transit of each low area over the field of observation:

I and II.—Neither of these depressions was at any time central within the limits of the United States, and they were unattended by any marked change in weather conditions except at northern stations and on the eastern slope of the Rocky Mountains. Low area I was central far to the north of Montana on the 1st, from which region it moved slowly eastward to Manitoba, where it was central on the 4th, the pressure being unusually low in that region on that date, when apparently the storm had attained its maximum energy. During the movement eastward from the Rocky Mountains from the 1st to the 4th, the attending trough of low pressure extended south to Texas, within which secondary low areas developed, which, however, quickly disappeared as the principal disturbance moved northward, apparently forced in that direction by the easterly movement of the high area from the Pacific. The barometer continued low north of Manitoba during the 5th, owing to the formation of a secondary disturbance which, although feeble, may be traced from that region to the upper Mississippi valley, where it disappeared on the 5th. Low area II apparently developed north of the Lake region on the 4th, and moved eastward over northern New England, reaching the vicinity of Halifax, N. S., on the 5th. It apparently increased in energy during the easterly movement, the minimum pressure observed being 29.28 at Sydney, C. B. I., on the afternoon of the 5th when the centre was near that station. Reports indicate that this storm was attended by severe gales after passing to the east of the coast line.

III.—Developed on the eastern slope of the Rocky Mountains south of Nebraska on the 5th, and passed northeastward to the Lake region as a disturbance of slight energy, although the area of rainfall included the greater portion of the country east of the 100th meridian. It was central in the lower lake region on the 6th, the bounding isobars indicating the development of a secondary disturbance to the southward, and on the morning of the 7th two centres of disturbance were noted, one on the middle Atlantic coast and the other in the upper Saint Lawrence valley. The high winds which occurred on the south New England coast during the 7th indicated the presence of a disturbance to the southward, and the shifting of the wind to the northward was probably due to the continued easterly course of a secondary disturbance. The principal disturbance lost energy after reaching the upper Saint Lawrence valley, and disappeared by an increase of pressure, being last marked as central near Montreal, Quebec, on the 8th.

IV.—Probably developed on the Pacific coast, but was first observed as central in Idaho on the 6th. It moved southeastward to the Dakotas during the 7th, three distinct depressions appearing within the trough of low pressure when it extended over the eastern slope of the Rocky Mountains, one central in North Dakota, one in South Dakota, and one in eastern Colorado. The a. m. weather chart of the 8th exhibited a well-defined area of low pressure central over the eastern Dakotas, from which region the disturbance moved almost directly north until after the a. m. report of the 9th, when an easterly movement may be traced from the regular telegraphic reports. The track of this storm as given on chart I indicates the uncertainty of its movements after the 9th by the dotted course between Manitoba and the lower Saint Lawrence valley. The easterly movement of the attending depression can be readily traced from the regular reports, but the great increase in energy after approaching the Atlantic coast would indicate that this resulted from a secondary disturbance or that it united with an ocean storm moving northeastward near the Gulf Stream.

V.—This depression developed over the lower Colorado valley, where it remained, covering the southern and central plateau regions, until the 10th, its slow movement to the northeastward being attended by light snows on the 8th and 9th from Colorado westward to Nevada. It passed eastward over Colorado during the 11th, reaching the central Missouri valley on the morning of the 12th. It increased greatly in energy after passing to the east of the Rocky Mountains, and when central near La Crosse, Wis., on the morning of the 13th, the barometric pressure was 29.20. While central near La Crosse, Wis., this storm covered the central valleys, bounded by eight closed isobars, and heavy rains occurred from the Texas coast northward, and over the Lake region. Severe gales occurred in the Lake region on the 13th and 14th, the winds shifting to westerly as the storm moved directly north, and the high area from the Rocky Mountain regions passed eastward over the Southern States.

VI.—Developed over Kansas on the 15th in advance of an area of high pressure. It passed northeastward to the Lake region, reaching Lake Huron on the afternoon of the 16th, where it divided, a secondary disturbance developing over the middle Atlantic states and passing eastward over southern New England, causing severe gales on the 17th, while the principal disturbance disappeared after reaching the upper Saint Lawrence valley. The storm was unusually severe while moving along the New England coast. When the centre was near Yarmouth, N. S., on the afternoon of the 17th, the barometer had fallen to 29.16, attended by easterly gales, while northwesterly gales occurred on the Atlantic coast as far south as Hatteras, N. C. Heavy rains occurred throughout the Gulf and Atlantic states while this storm was moving eastward from the Mississippi Valley.

VII.—This disturbance developed in eastern Nebraska on the 17th, and moved directly eastward over the Lake region with increasing energy. While central over Lake Erie severe northwesterly gales were reported from the upper lake region, and these dangerous winds continued until the centre reached the south New England coast. The rain area covered the northern states east of the Mississippi, although the rainfall was generally light. The weather continued fair in the Southern States, except near the Florida and Gulf coasts, where heavy local rains were reported. This storm apparently increased in severity after reaching the New England coast, a maximum velocity of 56 miles an hour being reported at Boston, Mass., on the 19th, and on the same date a maximum velocity of 44 miles at Eastport, Me. The centre of disturbance apparently passed eastward south of Nova Scotia during the 20th.

VIII.—Was first observed on the north Pacific coast on the 18th, where severe southeasterly gales were reported. It passed to the east over British Columbia during the 19th, on the afternoon of which date it was central north of Montana, attended by an extensive trough of low pressure covering the Rocky Mountain districts. On the morning of the 20th two depressions were observed, one central north of North Dakota and the other over Kansas, extending from Texas northward over Nebraska. The succeeding reports indicate that the more northerly depression either passed to the north of stations of observation or became a part of the succeeding area of low pressure which was following it from British Columbia. The more southerly disturbance moved southward over eastern Texas to the west Gulf where it was central on the morning of the 21st. attended by heavy rains and strong northeasterly

winds. It changed direction to the northeast near to and south of Galveston, Tex., and passed to the east Gulf coast, causing severe gales. After the centre reached the vicinity of Mobile, Ala., the disturbance divided, one portion passing to the east of the Alleghany range and the other passing to the Ohio Valley. These disturbances united on the afternoon of the 23d, the centre being located on the middle Atlantic coast. It continued its northeasterly course during the 24th and 25th, reaching its maximum energy after the centre passed to the eastward of the coast line on the 24th, the maximum velocity of wind reported being 72 miles per hour at Block Island, R. I., and 48 miles per hour at Boston, Mass. On the morning of the 26th it was last observed as central to the southeast of Nova Scotia.

IX.—This storm also originated on the Pacific coast, although it was first located as central north of Idaho on the afternoon of the 20th. It passed to the east of the Rocky Mountains on the 21st, moved southward over Montana and the Dakotas on the 27th, and thence eastward to the region north of Lake Superior, where it disappeared during the 23d.

X.—Apparently developed over the Atlantic to the east of North Carolina and in the vicinity of the Gulf Stream on the 26th, at least from the reports at hand it is impossible to trace it farther to the south. Northwesterly gales were reported at Hatteras, N. C., on the 26th, and northeasterly gales on the south New England coast on the 27th. It increased in intensity during its northerly movement, the barometer falling to 28.88 at Halifax, N. S., when the centre of disturbance passed northward near that station on the 27th. On the regular telegraphic weather chart it was located as central near Bird Rocks, Gulf of Saint Lawrence, on the morning of the 28th. Additional information relative to this storm is given under the heading "North Atlantic Storms."

XI.—Developed in the upper lake region and was probably a secondary disturbance attending the storm previously described. It moved southeastward to the lower lake region during the night of the 28th, attended by general rains throughout the Northern States and light snows in the upper lake region. It passed eastward over the middle Atlantic states during the 29th, and thence northeastward over New England and the lower Saint Lawrence valley, where it was central on the morning of the 30th, attended by easterly gales over the Gulf of Saint Lawrence and strong westerly winds on the New England and middle Atlantic coasts.

NORTH ATLANTIC STORMS FOR OCTOBER, 1890 (pressure in inches and millimetres; wind-force by Beaufort scale).

The paths of the storms that appeared over the north Atlantic Ocean during October, 1890, are shown on chart I. These paths have been determined from international observations by captains of ocean steamships and sailing vessels received through the co-operation of the Hydrographic Office, Navy Department, and the "New York Herald Weather Service."

Ten storms have been traced for October, 1890, the average number traced for the corresponding month of the last 7 years being 12. Of the storms traced for the current month 6 advanced eastward from the American continent, 2 apparently developed over mid-ocean, one is first located over the Banks of Newfoundland, and one appeared off the middle Atlantic coast. The storms generally moved northeastward after passing the 50th meridian, and no storms were traced from coast to coast. No well-defined cyclones appeared over or near the West Indies.

In October during the last 17 years 8 severe storms advanced northward from the Caribbean Sea. The storms generally recurved over or near extreme western Cuba and the east part of the Gulf of Mexico and passed thence along or off the Atlantic seaboard to the vicinity of Newfoundland. In two instances, only, during this period, in 1886 and 1887, have storms of pronounced strength advanced from the Caribbean Sea over the Gulf of Mexico west of the 90th meridian in October. In October, 1889, terrific gales swept over the British Isles on the 7th, causing many shipwrecks; in the northern parts of England and Ireland many houses were demolished and numerous trees uprooted, and the barometer fell below 28.70 (729) over Scotland. October is a month of severe storms in the middle latitudes of the north Atlantic Ocean. In the current month severe storms prevailed west of the 30th meridian during a greater part of the month, while over the eastern part of the ocean and near the British Isles the weather was unusually fine and settled for the season.

October, 1890, opened with a storm of great energy central northeast of Newfoundland, with pressure below 29.00 (737) and strong to whole gales. By the 2d this storm had moved northeast to about the 32d meridian, without evidence of loss of energy, after which it disappeared north of the region of observation. A telegram from Havana, Cuba, received 12.40 p. m. of the 1st, stated that a disturbance of moderate energy was southwest of that station, and a telegram received 3.20 p. m. of the 2d stated that a disturbance was west of Havana. Disastrous gales were reported over the North Sea on the 2d and 3d. From the 3d to 5th a storm of moderate strength moved northeastward about midway between the Azores and the Grand Banks, after which it apparently recurved westward and united with a storm central near Newfoundland on the 6th. During the 5th and 6th a storm moved from Nova Scotia to off the southern extremity of Newfoundland, with fresh to strong gales and pressure below 29.40 (747), after which it advanced rapidly northeastward and disappeared north of the region of observation after the 7th. On the 7th a storm, with pressure below 29.50 (749) and fresh gales, was central over the Grand Banks, from which position it passed eastward to about the 38th meridian by the 8th, with pressure below 29.10 (739) and fresh to strong gales, after which it disappeared north of the region of observation. On the 8th a storm which had moved off the middle Atlantic coast during the 7th was central off the south New England coast, whence it moved eastward to south of the Grand Banks by the 9th, with pressure below 29.40 (747) and fresh to strong gales. By the 10th this storm had moved northeastward to east of the Grand Banks, with pressure below 29.00 (737) and heavy gales, after which it moved northeastward and disappeared in the direction of Iceland after the 12th. During the 11th and 12th a severe storm advanced from the Gulf of Saint Lawrence to south of Newfoundland, attended by disastrous gales over the Gulf of Saint Lawrence, Cape Breton Island, and eastern Nova Scotia. During the 13th and 14th this storm remained nearly stationary over the Banks of Newfoundland, with pressure falling to about 29.20 (742) and fresh to strong gales, and on the 15th was central off the southeast extremity of Newfoundland, with a slight loss of energy. By the 16th this storm had moved north-northeast beyond the region of observation. The eastward advance of this storm was apparently retarded during the 13th and 14th by high pressure to the eastward.

On the 15th and 16th the pressure was low over the British Isles and severe gales were reported over the Irish Sea and along the coasts of Great Britain. On the 17th a severe storm moved northeastward off the New England coast, with pressure below 29.40 (747) and heavy gales. On the 18th this storm was central south of Newfoundland, where there was an apparent increase in energy, and by the 19th the storm centre had moved to the east of the Grand Banks, after which it passed northeast and disappeared north of the region of observation, attended throughout by storms of great violence. During the 19th a storm moved eastward off the south New England coast, and on the 20th was central off the western extremity of Nova Scotia, with pressure below 29.40 (747) and